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ROY F. WESTON, INC.  
201 ELLIOTT AVENUE WEST  
SUITE 500  
SEATTLE, WA 98119  
PHONE: (206) 288-6000

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Environmental  
Cleanup Office

27 June 1988

Mr. Mark A. Rossi, Senior Counsel  
First Interstate Bank of Washington  
PO Box 160  
Seattle, WA 98111

Subject: Assessment of Marine Power and Equipment Sites

Dear Mr. Rossi:

Based on your authorization of 11 May 1988, WESTON has completed site assessments on three Marine Power and Equipment sites, including:

- o Shipyard facility, 6701 West Fox Avenue, Seattle;
- o Parcels D and F, 7400 8th Avenue South, Seattle; and
- o Segale property, 7343 East Marginal Way South, Seattle.

The attached report documents our assessment methodology, sources of information, and findings in consonance with our proposal of 6 May. The report states what we believe to be the primary areas of potential environmental liability. To develop a better understanding of the scope of these liabilities, a more detailed second phase assessment will be required. The report describes the recommended activities to improve your base of knowledge on the properties.

We believe that this report fulfills your immediate objectives relative to these properties. Please do not hesitate to contact me or Pat Serie if you have any questions on the results or want to discuss our recommendations. We appreciate the opportunity to work with First Interstate Bank on this project and hope we will be able to meet other similar needs in the future.

Sincerely,

ROY F. WESTON, INC.

Frank C. Monahan  
Project Director

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## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 ASSESSMENT METHODOLOGY . . . . .	1
1.1 Introduction . . . . .	1
1.2 Historical Review . . . . .	1
1.3 Agency File Review . . . . .	3
1.4 Information Source Interviews . . . . .	3
1.5 Site Visits . . . . .	4
2.0 FINDINGS OF ASSESSMENT . . . . .	4
2.1 Fox Avenue Site Visit Results . . . . .	4
2.2 Parcels D and F . . . . .	6
2.2.1 Historical Industrial Uses . . . . .	6
2.2.2 Industrial/Commercial Uses and Possible Contaminants . . . . .	6
2.2.3 Surrounding Uses . . . . .	6
2.2.4 Site Visit Results . . . . .	16
2.2.5 Other Site Information . . . . .	18
2.3 Segale Property . . . . .	18
2.3.1 Historical Industrial Uses . . . . .	18
2.3.2 Industrial/Commercial Uses and Possible Contaminants . . . . .	18
2.3.3 Surrounding Uses . . . . .	18
2.3.4 Site Visit Results . . . . .	18
2.3.5 Other Site Information . . . . .	20
2.4 Environmental Setting and Potential Receptors . . . . .	21
3.0 SUMMARY OF POTENTIAL ENVIRONMENTAL LIABILITIES . .	22
3.1 Fox Avenue Site . . . . .	22
3.2 Parcels D and F . . . . .	23
3.3 Segale Property . . . . .	25
4.0 RECOMMENDATIONS FOR INVESTIGATION . . . . .	25
 APPENDICES	
A AERIAL PHOTOGRAPHS AND HISTORICAL MAPS . . .	A-1
B PHOTOGRAPHIC DOCUMENTATION OF SITE VISITS . .	B-1
C GENERAL NOTES AND BACKUP INFORMATION . . . .	C-1

## LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Historical Industrial Uses (Parcels D and F) . . .	8
2	Industrial/Commercial Uses and Possible Contaminants . . . . .	10
3	Surrounding Uses (Segale Property) . . . . .	13
4	Historical Industrial Uses . . . . .	19

## LIST OF FIGURES

<u>Figure</u>		
1	Project Vicinity Map . . . . .	2
2	Marine Power and Equipment Parcel D and Segale Properties . . . . .	7
3	Historical Ownership/Occupation Patterns . . . . .	15

## **FIRST INTERSTATE BANK SITE ASSESSMENT**

### **1.0 ASSESSMENT METHODOLOGY**

#### **1.1 Introduction**

This report was prepared to assess the condition of three properties in which First Interstate Bank of Washington holds a security interest (see Figure 1). The report presents the methodology used by Roy F. Weston, Inc. (WESTON) to examine the properties, the findings of the assessment, and the potential environmental liabilities that may be associated with their ownership. Also included in the report is an outline of the additional actions WESTON recommends be taken to further investigate site-specific liabilities.

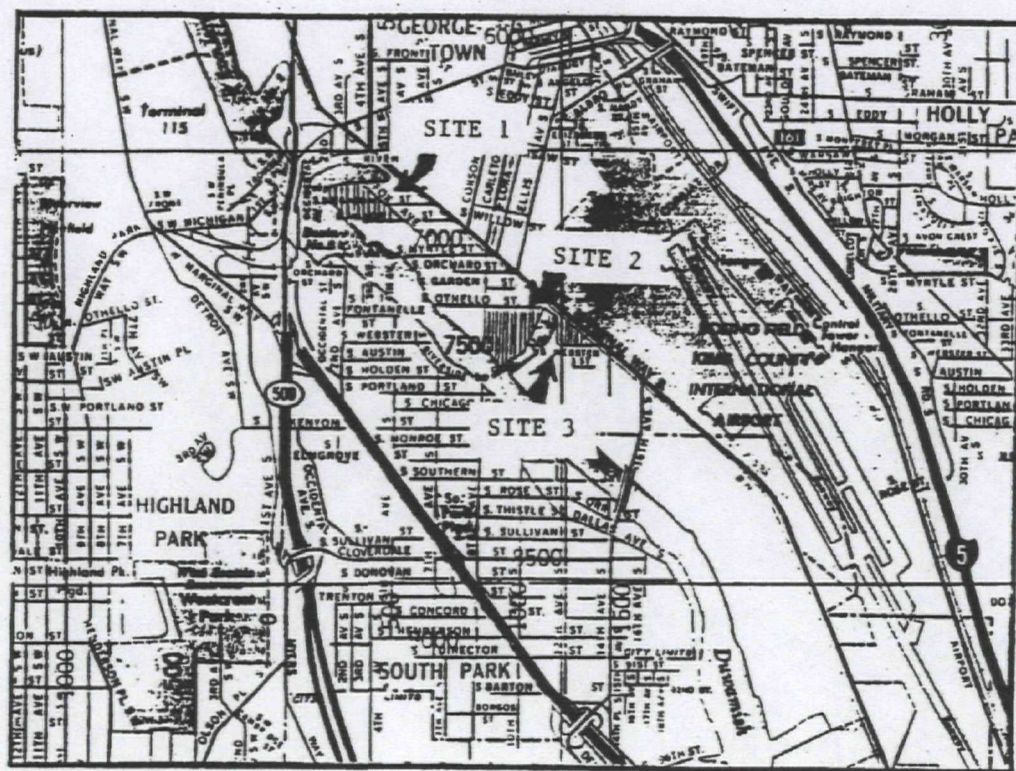
Section 1.0 describes the methodology employed to assess the condition of the three sites. Section 2.0 presents the findings of WESTON's historical review of on-site and surrounding land uses, the identification of potential environmental contaminants traditionally associated with these industrial uses, observations made during site reconnaissance visits, information obtained from reviews of agency files, and additional information obtained through interviews with agency staff and other individuals.

#### **1.2 Historical Review**

The following sources of historic information were researched to develop an historic profile for each site:

- o Kroll's Atlas of Seattle
- o Sandborn fire maps (1888, 1916, 1917, 1919, 1941)
- o Polk reverse address directories
- o Historical aerial photographs from U.S. Army Corps of Engineers map section
- o City of Seattle Water and Sewer Department records
- o Title search material





**Figure 1**  
**Project Vicinity Map**

### 1.3 Agency File Review

Several agencies were contacted to review their files for relevant information. Agencies contacted and information received included:

- o U.S. Environmental Protection Agency Region X
  - List of Permitted Facilities under Resource Conservation and Recovery Act (RCRA)
  - Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS)
  - Facility Index System (FINDS) list
  - Small Quantities Generators list
- o Washington Department of Ecology, Northwest Regional Office
  - Enforcement files
  - Elliot Bay Action Program
- o Seattle-King County Department of Health: No information available
- o Seattle Fire Department
  - No information available on chemical releases
  - No major fires
- o Washington Department of Labor and Industry: No information available, referred to Ecology
- o U.S. Army Corps of Engineers
  - Aerial photography of Duwamish area to 1940
  - Dredging records

### 1.4 Information Source Interviews

Discussions were held with Mr. Vernon Frese, former owner of one of the firms historically located on the site comprised of parcels D and F, about historical activities in the area. Mr. Frese was able to provide several useful insights and some additional historical maps.

Discussions with Washington Department of Ecology staff also added to the available information base. Dan Cargill and Richard

Koch of Ecology provided information contained in draft reports on the Duwamish Waterway.

### **1.5 Site Visits**

Site visits to all three properties were conducted on 24 May 1988. WESTON's primary technical field team member was the project director, Mr. Frank Monahan. Mr. Monahan has 17 years experience in environmental regulatory compliance, and is a registered engineer in Washington. He holds a master's degree in environmental engineering, and spent 12 years of his career with the Washington Department of Ecology in a regulatory compliance role.

Mr. Monahan was assisted by Mr. James Jakubiak, a project geologist with WESTON. Mr. Jakubiak holds a bachelor's degree in geology and has 3 years experience in hazardous waste evaluations and remediation.

Also participating in the site visit were Mr. Mark Rossi of First Interstate Bank of Washington and Ms. Patricia Serie, WESTON's project manager.

## **2.0 FINDINGS OF ASSESSMENTS**

Based on historical reviews, file reviews and interviews, available environmental information, and site visits to all three properties, a profile for each site has been developed. Each site is addressed separately in this section. The historical review information for the Fox Avenue site is contained in the Hart Crowser report of 5 March 1987 and not presented here. This information, however, was used to formulate the conclusions and recommendations presented in Sections 3.0 and 4.0.

### **2.1 Fox Avenue Site Visit Results**

The Fox Avenue site is located at 6701 West Fox Avenue, Seattle. It is currently a shipyard operated by Marine Power and Equipment. Observations made during the site visit are described below.

The purpose of the site visit to Marine Power and Equipment's operation at the Fox Avenue site was to visually identify signs of potential soil, sediment, groundwater, or surface water contamination from current and/or past operating practices. Photographic documentation of areas of interest on the site is included in Appendix B.

The Fox Avenue site is located adjacent to the Duwamish Waterway, and includes exclusive rights to the use of Slip 3 for

shipbuilding operations. The site contains four buildings, two of which are used for steel fabrication, one for the yard office, and one for the gate guard. The topography is flat with approximately 95 percent of the site covered with impervious surfaces, i.e., concrete and buildings.

The shipbuilding facility's overall appearance at the time of the visit was fairly clean. No evidence of historical industrial operations at the site were visible because the site had been paved approximately 10 years ago. No visual indication of surface water or groundwater contamination was evident. Minimal soil staining was observed along the southeastern border of the site. Current hazardous substances control and storage practices were fair, although not tightly controlled. Hazardous substances identified in storage or use at the site included solvents, paints, caustics, diesel fuels, gasoline fuels, and heavy metals. Potential releases of these materials could occur at the following locations around the site:

- o Two underground storage tanks (diesel, gasoline)
- o Solvent storage cabinet
- o Three above-ground undiked storage tanks
- o Solvent washing area
- o Paint storage areas
- o Ship launching platform
- o Electrical transformer
- o Drum storage areas
- o Storm drains
- o Site runoff
- o Building ventilation systems

The two underground storage tanks could potentially impact the site groundwater if determined to be leaking. Solvents are generally stored in open areas. In the event of a spill, rain could wash these contaminants directly into the adjacent waterway.

Because so little unpaved area is available to allow potential contamination to leach into the subsurface, surface water runoff is potentially the greatest concern for contaminant migration. Water runoff will likely enter storm sewers located throughout the facility. Sewer systems drain directly into the Duwamish Waterway, which means that any contamination spilled onto the ground will very likely concentrate in Duwamish sediments. Ventilation of the fabricating facilities can lead to particulate contamination of roofing materials. Drainage from the roofs may also enter the on-site storm sewers. Other surface runoff will likely follow the indented pathways of the crane railroad tracks, eventually discharging into the Duwamish.



Another potential contamination pathway at the Fox Avenue facility is the ship launching platform. During the site visit, a resin material was being cleaned from the deck of the launch platform. Fuel oils and ship lubricants may potentially drain directly into the Duwamish during ship repair operations. Marine Power and Equipment has been subject to agency action in the past for polluting from this area of the facility. The action was primarily a result of the handling of spent sandblast grit. Any hazardous substances being placed or spilled on this deck will easily migrate to the sediments through raising or lowering of the deck or by seepage through the holes built into the structure for drainage.

## **2.2 Parcels D and F**

This site is located at 7400 Eighth Avenue South, Seattle. Parcel D is currently leased to a transportation firm, while F is being used by Marine Power and Equipment primarily for storage. Figure 2 illustrates the configuration of this site as well as surrounding parcels and the Segale property described in Section 2.3. Results of WESTON's research on this site, and the site visit, are described below.

### **2.2.1 Historical Industrial Uses**

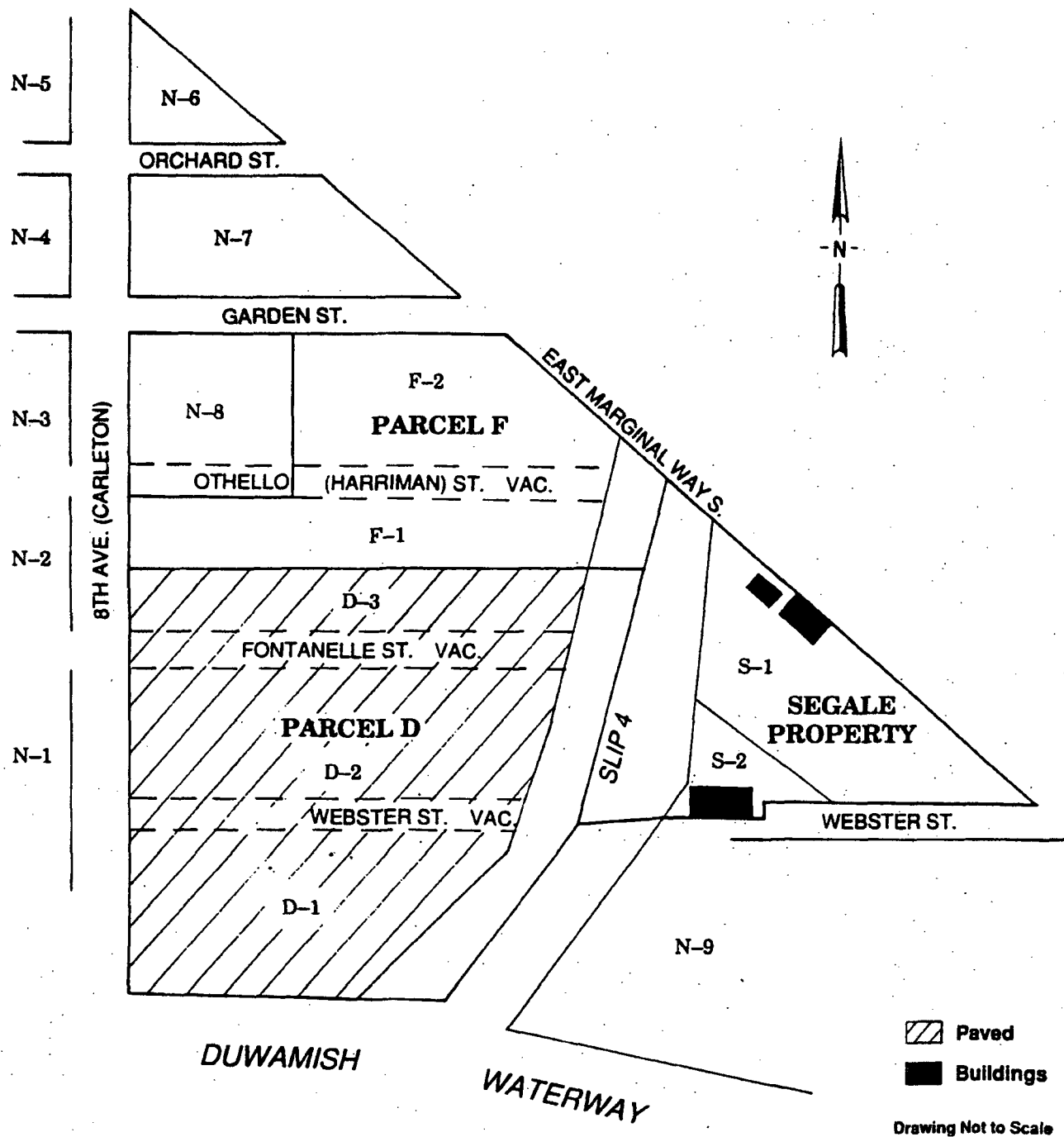
Historical research on the Parcels D and F site indicates that a number of industrial uses were made of the land. Table 1 lists the available information on previous uses. Concrete, wood, and metal products have been produced on this site over time.

### **2.2.2 Industrial/Commercial Uses and Possible Contaminants**

Parcels D and F were agricultural land, primarily open field pasture, between 1889 and 1916. The use of chemical fertilizers and toxic pesticides was not common to this era or type of agricultural activity; therefore, analysis of chemical usages begins with the first industry. Table 2 discusses the industry present and the potential contaminants. This table does not provide exact information because there are too many unknowns about the specific products made and production methods used. It does, however, provide an important perspective on the degree of potential liability that each industry represents.

### **2.2.3 Surrounding Industrial Uses**

In addition to the industrial uses that are known to have existed on the site, research also resulted in the identification of adjacent and surrounding industries that could be expected to have potential impacts on the parcel. As shown in Table 3, industrial use on parcels neighboring the site of



**Figure 2**  
**MPE Parcel D and Segale Properties**

**TABLE 1  
HISTORICAL INDUSTRIAL USES**

Owner/Occupant	Approximate Dates of Occupancy	Subparcel* Number	Land Use
(b) (6)	1889 - 1916	D-1	Agricultural
National Engineering and Equipment Co.	1916 - 1920	D-1	Machine shop metal fabrication
Pacific Machine Shop	1920 - 1923	D-1	Machine shop metal fabrication
Hydraulic Supply and Manufacturing Co.	1923 - 1981	D-1	Steel fabrication equipment mfg.
Marine Power and Equipment	1981 - 1986	D-1	Storage
Maga Industries	1986 - Present	D-1	Unloading/storage dock
(b) (6)	1889 - 1916	D-2	Agriculture
Morris Lumber Co.	1916 - 1920	D-2	Lumber/sawmill
Farr and Fields Lumber	1920 - 1925	D-2	Lumber/sawmill
Pankrantz Lumber	1925 - 1935	D-2	Lumber/sawmill
Puget Timber and Pole Co.	1935 - 1950	D-2	Lumber/sawmill/ wood products
Hydraulic Supply and Manufacturing Co.	1950 - 1981	D-2	Steel fabrication hydraulic mining equipment
Marine Power and Equipment	1981 - Present	D-2	Storage
(b) (6)	1889 - 1916	D-3	Agricultural

\*See Figure 3

**TABLE 1**  
**HISTORICAL INDUSTRIAL USES (continued)**

Owner/Occupant	Approximate Dates of Occupancy	Subparcel* Number	Land Use
Washington Excelsior Company	1916 - 1963	D-3	Shredded wood products
Layrite Concrete	1963 - 1979	D-3	Concrete building materials
Builders Concrete	1979 - 1981	D-3	Concrete building materials
Marine Power and Equipment	1981 - Present	D-3	Storage
(b) (6)	1889 - 1916	F-1	Agriculture
Washington Excelsior Company	1916 - 1963	F-1	Shredded wood products
Layrite Concrete	1963 - 1979	F-1	Concrete products
Builders Concrete	1979 - 1981	F-1	Concrete products
Marine Power and Equipment	1981 - Present	F-1	Storage
(b) (6)	1889 - 1916	F-2	Agriculture
Washington Excelsior Company	1916 - 1943	F-2	Shredded wood products
Layrite Concrete	1943 - 1979	F-2	Concrete products
Builders Concrete	1979 - 1981	F-2	Concrete products
Marine Power and Equipment	1981 - Present	F-2	Storage

\*See Figure 3



TABLE 2

## "INDUSTRIAL/COMMERCIAL USES AND POSSIBLE CONTAMINANTS"

Industry Name	Potential Chemicals Involved	Typical Quantities	Notes
o Waste Stream			
1. Concrete Products			
o Process water	PHE 11-12.0	2-3 Thousand gallons wastewater per ton per metric ton of production	An EPA national survey showed most wastewater was disposed of in evaporation ponds.
o Truck wash	suspended solids, oil and grease, trace metals		EPA studies concluded metals were not in significant quantity in effluents to adversely effect the environment.
o Stormwater runoff			
o Parts washing	Solvents -- Chlorinated, ignitable, caustic	10-15 gal/wk/washer	Parts washer was adjacent to a dry well at Layrite
o Underground fuel tanks	Petroleum products	500-1000 gallon tanks	Tanks could be larger
o Insulation	Asbestos	Variable	One building at Layrite Concrete had a lot of insulation in it.
2. Wood Products			
	Phenol formaldehyde	400-1600 gallons/month	EPA small quantity generator reports note that less than 10% of the waste on an area-wide basis go to the ground.
o Wash water	Lacquer thinners		
o Spent glues	caustics		
o Sanding	wood chips		
o Cutting	Butyl acetate Carbon tetrachloride		
o Dye or coloring	Coal tars		
3. Shipbuilding and Repair	Spent paint with Cu, Zn, CR, Sn, Pb and organotin compound, vinyl resins, MEK, toluene, tricresyl phosphate, naptha, iron oxides, ethylene glycol, carbon black	Highly variable	Organotin compounds are extremely toxic
o Sandblasting			
o Painting			
o Spills			

TABLE 2

## INDUSTRIAL/COMMERCIAL USES AND POSSIBLE CONTAMINANTS (Continued)

Industry Name	Potential Chemicals Involved	Typical Quantities	Notes
o Waste Stream			
o Parts cleaning	Solvents -- chlorinated ignitable, caustics	10-15 gal/wk/washer	
o Fuel tanks	PNA, HTEX, Pb	500-1000 gallons	
4. Heavy Equipment Repair	Solvents -- Chlorinated, ignitable, caustic	75-100 gal/mo for small business. It would go up from there depending on size	
o Cleaning	Lead acid battery		
o Spent material	Oil and grease		
o Equipment washing			
5. Machine Shop			
o Cuttings	Solvents -- ignitable, chlorinated metal	On an average 3500 - 100,000 lb/mo	The waste from machine works is variable depending on the type of metal work. The historical search was not exhaustive enough to define this.
o Cleaning	sludge/dust, cutting oils with metals, oil and grease		
o Welding			
6. Electrical Repair			
o Cleaning	Solvents	Small amounts and aerosol cans	Electrical repair shops are not generally large sources of chemical contamination.
7. Lumber Yards			
o Sawing	Bark and wood debris		Parcel D had a lumber facility on it for many years but the actual activity at the site is not well documented.
o Equipment repair	Hydraulic fluid	Leaks and drips	
	Solvents-caustic, ignitable or chlorinated	10-15 gal/wk/washer	
o Underground tanks	PNA's, BTEX, Pb	500-1000 gallons	
If plywood or laminated beams were produced	phenolic glues caustic other organic glues	2-3 barrels/month	
If wood treatment occurred	penta chlorophenol creosote, metals (Cu, Zn, As, Cr)	On a batch basis when wood buildup gets too high	

TABLE 2

## INDUSTRIAL/COMMERCIAL USES AND POSSIBLE CONTAMINANTS (Continued)

Industry Name	Potential Chemicals Involved	Typical Quantities	Notes
2. Waste Streams			
Transportation			
o Underground tank	PNA's BTEX, Pb	1000-5000 gallon	The larger volumes are because of the assumed volume of truck traffic.
o Repairs	Solvents-caustic, chlorinated, ignitable	10-15 gal/wk/washer	
o Spent batteries	Pb, acid		
Hydraulic Supply and Manufacturing			
o Parts cleaning	Oil and grease		
o Equipment washing	Metal scraps	variable	
o Metal machining	Solvents -- Chlorinated, ignitable or caustic	10-15 gal/wk/washer	
o Painting	Paint waste	2-3 barrels/month	

## Sources

EPA development documents for NPDES program  
 Department of Energy Annual Report on Hazardous Waste generation GRDCA's small quantity  
 Generation  
 GRDCA's Small Quantity Generator Survey  
 Personnel Experience

**TABLE 3  
SURROUNDING USES**

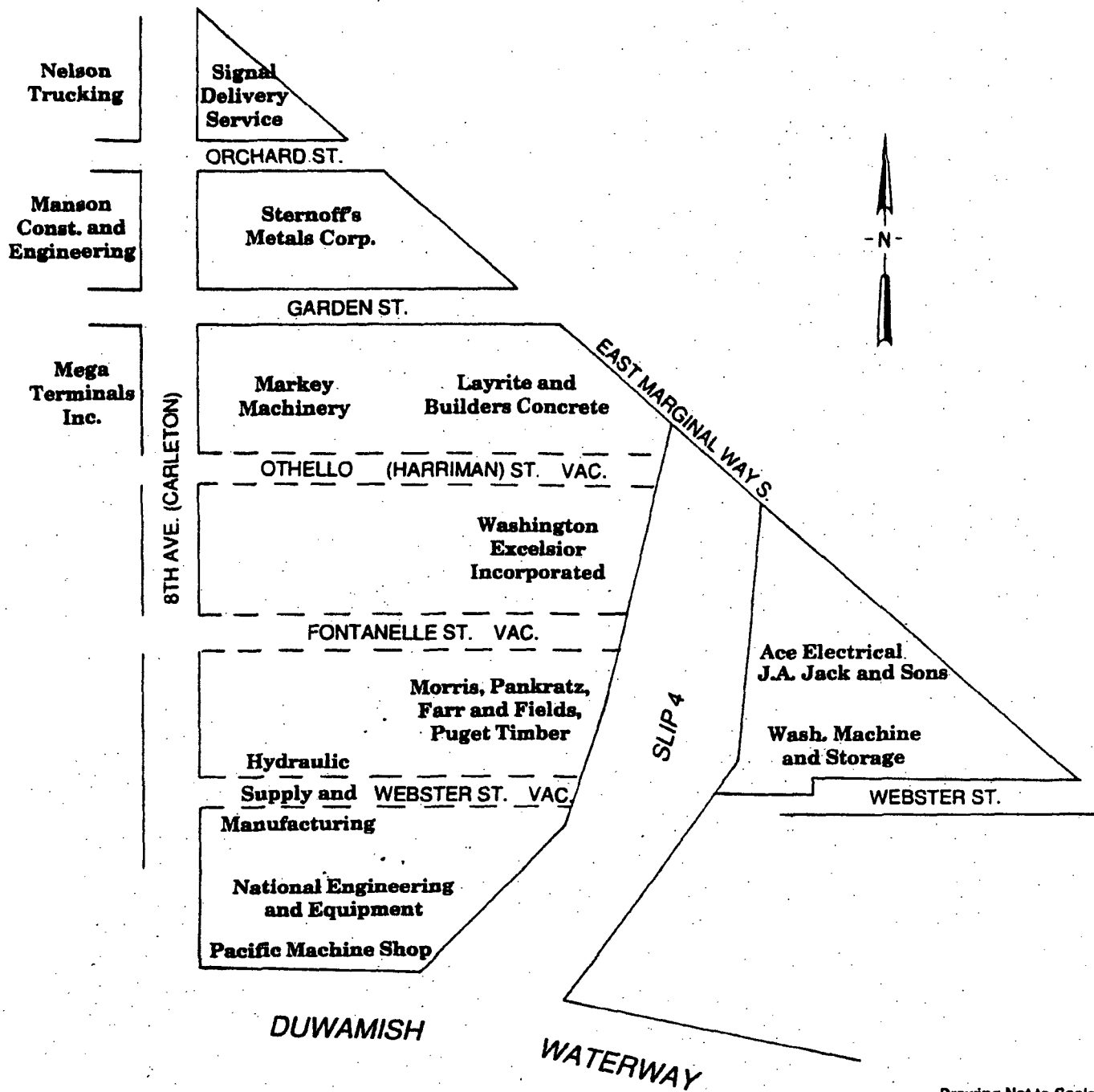
Owner/Occupant	Approximate Dates of Occupancy	Subparcel* Number	Land Use
Pacific Ship Building	1917 - 1920	N-1	Shipbuilding
Ocean Barge and Transport	1920 - 1928	N-1	Shipbuilding
Sea Products, Inc.	1928 - 1950	N-1	Possible shipbuilding
Seattle Concrete Pipe Company	1950 - 1975	N-1	Concrete products
Puget Sound Trucking Company	1975 - Present	N-1	Truck transport
Unnamed auto body repair shop	Present	N-1	Auto repair
Pacific Ship Building	1917 - 1920	N-2	Shipbuilding
Ocean Barge and Transport	1920 - 1935	N-2	Shipbuilding
Sea Products, Inc.	1935 - 1950	N-2	Shipbuilding
Seattle Concrete Pipe Company	1950 - 1975	N-2	Concrete products
Puget Sound Trucking Company	1975 - Present	N-2	Truck transport
<b>CURRENT OCCUPANTS</b>			
Puget Sound Trucking Company and Unnamed auto body repair shop	Present	N-1	Trucking/auto body repair

\*See Figure 3

**TABLE 3**  
**SURROUNDING USES (continued)**

Owner/Occupant	Approximate Dates of Occupancy	Subparcel* Number	Land Use
Puget Sound Trucking Company	Present	N-2	Trucking
Mega Terminals, Inc.	Present	N-3	Transportation
Manson Construction and Engineering	Present	N-4	Trucking
Nelson Trucking	Present	N-5	Trucking
Signal Delivery Service	Present	N-6	Trucking
Sternoff's Metals Corp.	Present	N-7	Metal fabrication
Markey Machinery	Present	N-8	Machine works
Boeing Company	Present	N-9	Parking lot

\*See Figure 1



**Figure 3**  
**Historical Ownership/Occupation Patterns**

concern also use materials which could lend to contamination problems.

#### 2.2.4 Site Visit Results

The purpose of the site visit to Parcels D and F was to visually identify contamination or environmentally sensitive conditions in surface or groundwater, soil, or other elements. Photographic documentation of conditions found at the site is included in Appendix B.

This site consists of two parcels. The largest portion, Parcel D, is a paved area used for a ship loading and unloading facility. Lumber and steel were stored on the pavement awaiting shipment. No visible signs of past industrial facilities were observed, and no signs of current contamination were visible.

Parcel F is located north of D and is also part of Marine Power and Equipment's holdings. The parcel is located north of Parcel D to vacated Othello Street, and includes properties once belonging to Layrite and Builders Concrete companies. Property rights of both parcels D and F extend to the center of Slip 4.

Visual inspection of the Parcel F property identified several potential environmental considerations, including the following:

- o At least two potential underground gasoline/diesel storage tanks
- o Two concrete storage tanks on the surface
- o Two areas of stored drums and buckets
- o Scattered drums, some partially filled with liquids
- ✓o An area of elevated topography that had been filled
- o Scattered trucks, tires, and building rubble
- ✓o A parts cleaning area
- ✓o Sewer outlets entering Slip 4
- o Possible asbestos insulating material in a building

An interview with Mr. Vernon Frese, former owner of Layrite Concrete, confirmed the presence of at least two underground storage tanks at the facility. He also explained that the surface concrete tanks were used to store silica and pumice rock. He also confirmed that truck repairs and parts cleaning took place in the building closest to Slip 4.

Partially full and empty drums, some bulging, were observed throughout the site. An estimated 100 drums, primarily concentrated in two areas, were also observed. Closed buckets containing oils and possibly solvent liquids were also present at one drum location. In one of the buildings still standing on the property, insulation material possibly containing asbestos was found.

Stained soils were observed at various locations of the site. This may be a result of fluids leaking from drums or the abandoned trucks throughout the area. Possible contaminated soils exist at an unusual topographic feature located near the north-central property boundary of Parcel F. No visible indications of major soil or groundwater contamination from current or past operations were observed.

#### 2.2.5 Other Site Information

A review of historical air photographs depicting parcels D and F show that the area was not paved during most of the time industry was operating on the site, leaving the ground exposed to chemical contamination. The area of Parcel D denoted as D-2 on Figure 2 appeared to be of a waste disposal area used by the lumber company. The photos also show that Parcel F is next door to Sternoff Metals. Sternoff had a low-temperature burner located adjacent to the property line which represents a significant potential source of air contaminants that could fall on to Parcel F. Some old site plans showed a dry well in the F-2 section about where Lot 16 is. This is close to the current Markey Machine property line. Dry wells provide a direct conduit for contaminants to reach groundwater. Dry wells still appear in some of the drawings from the 1970s.

The area has been sewered since the early 1900s so the most likely route for the majority of contaminants was either the sanitary or storm sewer. There are indications from EPA and state surveys of the waterways that suggests that the sediments in Slip 4 may be contaminated like other similar watercourses tested throughout the Duwamish/Elliott Bay area. If testing of the sediments showed contamination, it would be difficult to define the source because of the significant amount of off-site stormwater discharged into the slip.



Groundwater flow direction is not known for this area but based on topological features, it probably flows towards Slip 4 and the Duwamish Waterway. If it does, groundwater contamination from off-site industries could also be flowing under the site, representing a significant liability. The aerial and historical photos indicate that there could be significant upgradient sources.

Our review of EPA's files shows that Parcels D and F were noted as the location of hazardous waste generation on Marine Power's generator notification forms.

### **2.3 Segale Property**

The Segale site is located at 7343 East Marginal Way South, Seattle. The parcel configuration is shown in Figure 2. Results of WESTON's research on this site and the site visit, are described below.

#### **2.3.1 Historical Industrial Uses**

Research on the historical industrial uses of the Segale property provided the information presented in Table 4. The longest tenant of the site, Washington Machine and Storage, was engaged in heavy equipment sales and repair.

#### **2.3.2 Industrial/Commercial Uses and Possible Contaminants**

Table 2 also presents historical land use with potential contaminants associated with these uses.

#### **2.3.3 Surrounding Industrial Uses**

In addition to information available on historical uses of the site itself, research also sought information on surrounding uses. As shown on Table 4, the land which is south of the Segale property is used by the Boeing Company as a parking lot.

#### **2.3.4 Site Visit Results**

The purpose of the site visit to the Segale property was to assess and evaluate visual signs of past and current contamination for in order to estimate potential environmental liabilities. Photographic documentation of conditions found at the site is included in Appendix B.

Three buildings were found on the site in addition to several concrete foundations of past structures. One of the buildings and the property it stands on is owned by METRO. It is a municipal pumping station located along the East Marginal Way

**TABLE 4  
HISTORICAL INDUSTRIAL USES**

Owner/Occupant	Approximate Dates of Occupancy	Subparcel* Number	Land Use
(b) (6)	1897 - 1928	S-1	Agricultural
Washington Machine and Storage Co.	1928 - 1982	S-1	Heavy equipment sales and repair
J.A. Jack & Sons	1966 - 1978	S-1	Electric/ combustion motor repair
Ace Electrical	1978 - 1985	S-1	Electric/ combustion motor repair
Marine Power and Equipment	1985 - Present	S-1	Shipbuilding
(b) (6)	1897 - 1928	S-2	Agricultural
Washington Machine and Storage Co.	1928 - 1982	S-2	Heavy equipment sales and repair
M.A. Segale, Inc.	1982 - 1985	S-2	Construction material storage
Marine Power and Equipment	1985 - Present	S-2	Shipbuilding

\*See Figure 1

boundary. A second building is located just north of the pumping station on the site and appears to have either been used as a house or office structure. The third building is located at the southern end of the property along Slip 4 and appears to be a garage.

Visual inspection of the property identified the following environmental considerations:

- o Approximately six scattered drums
- o Small area of stressed vegetation
- o Large debris pile
- o Garage containing tires, drums, asphalt material

From a visual inspection, no major soil or contamination was noted. The majority of the site is cemented. Surface water runoff probably exits the site via a sewer system or directly into adjacent waterways. Few visual indications as to historical industrial facilities exist except for railroad tracks and a cement loading dock structure.

Drums scattered throughout the vacant lot (six) appear empty or filled with soiled rags and cloth. Approximately 25 additional drums are stored within the confines of the garage. Two of these drums are salvage drums, while the others contain liquids and/or bulk materials.

Along the southern loading dock area, a small area of stressed vegetation exists. Surface contamination appears minimal. Toward the center of the site, a demolished building exists in a debris pile. Removal might uncover additional drums or other items of environmental concern.

Within the garage, a pile of automobile tires, drums, and bags of asphalt material are being stored. Tires are traditionally difficult to dispose of, and the drums need to be characterized and disposed of properly. The asphalt materials can be assumed to be linked to the Segale Highland Asphalt facility identified by the EPA as a potential source of contamination to the Duwamish Waterway.

#### 2.3.5 Other Site Information

A review of the historical aerial photos shows that most of this site was unpaved during former industrial/commercial activities, particularly on the western half of the property. The photos also show significant industrial activity along Slip 4, including what may be four large tanks. Site drawings also show steel piping going to the area where the tanks were. The aerial photos show more industrial activity than is indicated by the historical search. This could be because the

Segale property may have been used as backup to other industrial activity in the area rather than as a main facility.

The groundwater and Slip 4 sediment contamination concerns brought out in Section 2.2.5 are also applicable to this site, although there is no known groundwater contamination at the site.

#### 2.4 Environmental Setting and Potential Receptors

The Marine Power and Equipment properties investigated are located in the industrialized Duwamish River valley in south Seattle, Washington. The Duwamish River valley was established by erosion that occurred at the end of the last glaciation of the Puget Lowland about 11,000 years ago. Since that time, the Duwamish River has deposited sand-sized alluvium in the valley. Alluvium is estimated to be about 300 feet thick. Channel modification and dredging activities at the turn of the century resulted in the current general configuration of the Duwamish River channel. Dredge fill was placed in the valley at that time.

Groundwater in the valley alluvium is close to the ground surface. This groundwater bearing alluvium is the near-surface aquifer. The aquifer is highly susceptible to contamination from surface activities. In the general vicinity of the properties, groundwater is usually 10 to 15 feet below the ground surface. Flow in the aquifer below the properties is from east to west, toward the river. The river receives discharge from this aquifer. Near the river, water levels in the aquifer are influenced by the tides.

There are four possible migration pathways at the two sites: airborne dust, vadose zone migration, groundwater, and surface water. The potential receptors are the Duwamish waterway and human contact, if we assume that the groundwater is not usable as a drinking water aquifer. The amount of airborne dust contaminants are currently limited because much of the property is paved. If the site is excavated for further use, this could become an issue. The migration of contaminants through the vadose zone (soils) is also limited by the amount of paving at the three sites. The two primary routes for off-site migration of contaminants are surface water and groundwater. Any contaminants in paved areas would be taken off site in the stormwater discharges. Some of the contaminants not taken off site will concentrate in the soils of the unpaved areas. Contaminants that exist in the groundwater under the site most likely push in and out with the tides. The hydrogeology of these sites has not been determined, but sites in similar settings generally have a very low exchange of contaminants with the waterways and sediments via the groundwater. If the contaminant source is high enough and/or

the time period of flushing long enough, a significant problem could still arise.

### **3.0 SUMMARY OF POTENTIAL ENVIRONMENTAL LIABILITIES**

Based on the reviews described above, and the findings that WESTON was able to make based on available information, several conclusions can be drawn regarding potential environmental liabilities associated with the three Marine Power and Equipment sites. This section describes those projected liabilities for each site.

#### **3.1 Fox Avenue Facility**

Several items that indicate that soil and/or groundwater contamination might exist at the Fox Avenue site include:

- o The site has a long history of occupation by industry handling hazardous chemicals.
- o The waste disposal practices at the time of the previous industrial operations were not up to current standards.
- o The area was not paved until recently.
- o The groundwater is shallow in the area.
- o The facility is contiguous to surface waters of the state.
- o An historic aerial photo review indicates that there may have been on-site which contained waste.
- o Industry surrounding the site, like the battery facility, could have contributed to problems at the site.
- o The current owner/operator of the site handles hazardous material.
- o Sandblasting activity at the site does allow some grit and paint residues to enter the surface water.
- o There are underground fuel tanks on site.
- o The site is built partially on dredged material that may be contaminated.

The amount of chemical contamination of the soil and the groundwater at the site could be significant, but the environmental liabilities from it are limited because of the recent

paving at the site. The likely liability would come from the following:

- o If the site was to be used for something other than a shipyard or if an expansion of the shipyard required the pavement to be broken up and the soils to be removed, problems could arise from worker exposure to the contaminated soils. Development costs could be prohibitive if excavated soils were above the acceptable criteria for disposal in local landfills. The cost for disposal can range from \$6 to \$160 per cubic yard, exclusive of transportation costs, depending on which landfill has been designated. Excavation procedures could also be significantly more expensive because of health and safety requirements.
- o If the site cap is not disturbed, then the liability that might arise is associated with groundwater, the one remaining route for contaminants to migrate off site. EPA and Ecology are looking at the contaminated sediments issue very closely. If the agencies determine that off-site migration of contaminants is contributing to the contaminated sediments problem, the property owner could be asked to participate in the clean up of the waterway. This is what is happening in Tacoma's Commencement Bay at the present time. Even if the sediments are not contaminated enough to cause the agencies to pursue corrective actions, the disposal of dock and slip dredge sediments will become increasingly more expensive if chemical contaminants are present. The state of Washington and EPA are developing some strict criteria for open-water disposal of chemically contaminated sediments (the current method for disposal). If these criteria are exceeded, the sediments will need to be disposed of in engineered upland dredge disposal landfills. This will significantly increase the cost of operating a facility. The buyer of the property, if they are astute, would take this into consideration and negotiate the price downward.

### 3.2 Parcels D and F

In the case of parcels D and F, there are numerous factors that point to the potential for groundwater and/or soil contamination. Several of these are listed below.

- o The site has a long history of occupation by industry handling hazardous chemicals.
- o The waste disposal practices at the time of the previous industrial operations were equal to what is needed to meet current standards.

- o The area was not paved until recently.
- o The groundwater is shallow in the area.
- o The facility is contiguous to surface waters of the state.
- o The site was partially constructed with dredged material that may be contaminated.
- o Surrounding industry, especially Sternoff Metals, represents a potential source of contamination.
- o One dry well was observed on the site near the parts washer and another in the southeast corner of Parcel F.
- o There is a high potential that underground fuel tanks are present.
- o There are still exposed soils on Parcel F.
- o Numerous barrels of waste were found throughout the site, many in a rusting or deteriorated condition.
- o The site is notified as a hazardous waste generator.

There are several areas of potentially significant environmental liability:

- o Most of Parcel D is paved with concrete which acts as a cap and isolates potentially contaminated soils from human or animal contact and prevents rainwater from pushing potential contaminants further into the groundwater system. If excavation of the pavement and existing soils should be required on Parcels D or F because of future development, human exposure could become a problem. Potential additional expense of excavation and disposal could become an issue as discussed in Section 3.1 pertaining to the Fox Avenue site.
- o A second area of liability for parcels D and F is the same as that mentioned for the Fox Avenue site. This site also has the potential for off-site migration of contaminants through the groundwater system to the Duwamish River and its sediments. As discussed in Section 3.1, this could result in a required corrective action by the State and EPA as well as potentially impacting the cost of maintaining the dredged dock areas.
- o The numerous barrels on site will most likely need to be characterized and properly disposed of before a sale can

be made. Considering the number of barrels found, some of which were partially hidden, it is possible that more would be found in a site excavation.

- o Insulation material found in one of the buildings was produced by John Manville, a leading producer of asbestos insulation in the United States. There is a high probability that this material, if tested, will contain asbestos and require special handling and disposal.
- o The underground tanks, if found to be leaking, could have contaminated soil and groundwater. Ecology's new goals for clean up are fairly restrictive (they have set soil clean-up standards at drinking water standard levels) and therefore the cost of cleanup could be significant.
- o The removal of the demolition debris on the Layrite property could become a problem if further asbestos-containing material is found. The age of this facility is such that it could contain asbestos material.

### 3.3 Segale Property

The Segale property has had less industrial activity than the Fox Avenue and parcels D and F properties; however, there are still factors on site that could lead to potentially significant soil and groundwater contamination. These factors include:

- o The site may have liabilities if excavation of paved materials and/or soils is required by future development.
- o The site may be contributing to waterway and sediment contamination.
- o The site may have underground fuel tanks that could be leaking.
- o Barrels will need to be tested and removed.
- o The old tires could be a problem for disposal, especially if additional tires are buried on site.

### 4.0 RECOMMENDATIONS FOR INVESTIGATION

Because of the preliminary nature of the conclusions presented in Section 3.0, WESTON recommends that another limited phase of assessment be carried out to better assure First Interstate Bank of Washington of reliable information on the three sites. This section describes the types of activities that



are recommended, based on the results of this first phase assessment, and the general scope of the recommended actions.

The basic objective of this study was to assess what potential environmental liabilities each of the three properties has. The conclusion reached is that all three sites have significant potential liabilities. The first phase of work did not include any field investigations that definitively showed there is chemical contamination at the site. Projects similar to these generally progress to a second phase, when actual field monitoring of the environment is done to ascertain if contamination exists. If the results of the first phase study are born out by the second phase site investigation, then First Interstate may need to complete a much more detailed site characterization study to determine what corrective actions may be required at the site. The purpose of doing the work in a phased manner is that it provides several decision points before engaging costly site characterization and remediation work. Generally, the latter two phases only occur when the property has substantial value compared to the liability.

At this point, WESTON is only recommending that First Interstate proceed towards a Phase II study, with the exception that we recommend that First Interstate sample, designate, and properly dispose of all barrels of waste found on the site. It would also be advisable to investigate and remove the underground tanks found on site. It is anticipated that both of these actions need to be completed before a buyer would consider purchasing the property.

In terms of field work, WESTON recommends the following:

- o Bore 5 to 20 holes at each site with samples taken at 2-1/2-foot intervals. Five holes per site is a minimum; the more borings that are done, the more reliable the conclusions about site contamination will be. The maximum number of holes we feel should be sampled during Phase II is 20, unless new information is uncovered during the investigation that indicates otherwise. In addition, additional surface soil samplings should be done at the Layrite property to assess the impact from fall out of metallic and organic air contaminants from Stearnoff's low-temperature furnace.
- o In order to characterize off-site migration, we recommend that a minimum of four groundwater monitoring wells be installed at each site.
- o We recommend the following tests be run on the soils and groundwater:

- Ten selected priority pollutant metals
- Total polychlorinated biphenyls (PCBs)
- Base/acid/neutral (BAN) scans
- Volatiles (using HNU and/or OVA in the field)

The BAN scan and HNU/OVA tests will provide indications of the presence of such contaminants, but will not give precise quantitative or qualitative results. These tests are commonly used in Phase II studies and are substantially less expensive than the testing for the full hazardous substance list.

- o No sediment sampling is recommended until the preliminary soil and groundwater work is complete. We do, however, recommend a thorough review of existing agency data related to sediment contamination in the area.
- o We recommend that, at a minimum, bulk fiber testing be done on suspected asbestos materials at the old Layrite property.

The results of this investigation would be written up along with WESTON's conclusions about site contamination. This proposed program was developed with three objectives in mind:

- o Give First Interstate Bank and other lending institutions a better understanding of the potential liabilities at the site
- o Provide information for First Interstate, along with the Phase I study, that can be made available to potential purchasers
- o Provide a baseline for contamination that exists at the time First Interstate takes title to the properties. This could be important if future owners further contaminate the site to the point where regulatory agencies step in and try to allocate responsibilities under Superfund. It is not technically feasible to come back after the fact and determine responsibility for any contamination.

Depending on the perspective of the potential buyer and/or the regulatory agency personnel, the completeness of the investigation may need to be increased. We feel that this represents a minimum level of effort for Phase II.

The costs associated with this Phase II investigation have not been precisely defined. The field investigation costs, including all soil, groundwater, and asbestos work for all three sites, should be in the range shown below:

o Soil borings and monitoring well installation (assumes the concrete is 6 inches thick)	\$20K - \$ 30K
o Laboratory analysis (assumes ten holes per site/two samples per hole and four wells per site)	50K - 70K
o Consulting fees	25K - 30K
o Equipment including health and safety	<u>2K - 3K</u>
TOTAL	\$97K - \$133K

An exact cost for sampling, designation, and removal of barrels and underground tanks cannot be provided without a more detailed inventory of the problem and solicitation of bids from qualified contractors.

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